

WHAT IS CLAIMED IS:

1. A system for removing energy from a semiconductor, comprising:
a spring-arm device operable to be coupled to a substrate, the spring-arm device comprising at least one aperture operable to allow at least one package
5 mounted on a substrate to pass through when the spring-arm device is coupled to the substrate;
a heat sink operable to remove heat from the at least one package, the heat sink comprising at least one heat sink post, the heat sink post comprising a recessed portion operable to receive a heat-sink clip; and
10 at least one spring-arm extending from an inside edge of the aperture, the spring-arm comprising the at least one heat-sink clip at the distal end of the spring-arm and operable to retain a heat-sink post, the retention of the heat sink post operable to couple the heat sink to the at least one package.
- 15 2. The system of Claim 1, wherein the spring-arm device is a sheet of punched spring-steel.
3. The system of Claim 1, wherein the spring-arm device is coupled to the substrate with at least one screw.
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4. The system of Claim 1, wherein the spring-arm device is coupled to the substrate with epoxy.
5. The system of Claim 1, wherein the spring-arm device is coupled to
25 the substrate with an adhesive.
6. The system of Claim 1, wherein the heat sink clip comprises a u-shaped portion at the distal end of the spring arm.
- 30 7. The system of Claim 1, wherein the at least one heat sink clip comprises an enclosed aperture at the distal end of the at least one spring arm.

8. The system of Claim 1, wherein the recessed portion of the at least one heat sink post comprises an arcuate groove substantially normal to the longitudinal axis of the at least one heat sink post.

5 9. The system of Claim 1, wherein the recessed portion of the at least one heat sink post comprises an arcuate region bounded by the distal end of the at least one heat sink post and a post inserted into the distal face of the at least one heat sink post along the longitudinal axis of the heat sink post, the post having an enlarged distal end.

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10. The system of Claim 9, wherein the at least one heat sink clip comprises an enclosed aperture at the distal end of the at least one spring arm, the at least one heat sink clip coupled to the at least one heat sink post by inserting the post through the aperture into the distal face of the at least one heat sink post along the longitudinal axis of the heat sink post.

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11. The system of Claim 1, wherein the at least one aperture comprises a plurality of apertures, each of the plurality of apertures operable to allow one of the at least one packages mounted on the substrate to pass through when the spring-arm device is coupled to the substrate.

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12. The system of Claim 11, wherein the at least one heat sink comprises a plurality of heat sinks, each of the plurality of heat sinks corresponding to one of the at least one packages mounted on the substrate.

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13. A method for removing heat from a semiconductor device, comprising:
coupling a spring-arm device to a substrate, the spring-arm device comprising:
at least one aperture operable to allow at least one package mounted on
the substrate to pass through; and

5 at least one spring arm extending from an edge of each of the at least
one apertures, the at least one spring arm further comprising a spring-arm clip at a
distal end; and

coupling at least one heat sink to the spring-arm device, the at least one heat
sink comprising at least one heat sink post operable to be coupled to the at least one
10 spring-arm clip, wherein the at least one heat sink is coupled to the spring-arm device
to allow the at least one heat sink to contact the at least one package mounted on the
substrate.

14. The method of Claim 13, wherein the at least one heat sink comprises a
15 plurality of heat sinks, and wherein the at least one package comprises a plurality of
packages, each of the plurality of heat sinks operable to be coupled to one of the
plurality of packages.

15. The method of Claim 13, wherein the spring-arm clip comprises a u-
20 shaped portion at the distal end of the at least one spring-arm, the spring-arm clip
operable to be received by a radial arcuate groove about the longitudinal axis of the at
least one heat sink post.

16. The method of Claim 13, wherein the spring-arm clip comprises an
25 enclosed aperture at the distal end of the at least one spring-arm, the spring-arm clip
operable to be coupled to a radial arcuate groove in the at least one heat sink post.

17. The method of Claim 16, further comprising securing the at least one
spring-arm clip to the at least one heat sink post using an endcap, the endcap having a
30 diameter greater than the diameter of the enclosed aperture.

18. The method of Claim 13, wherein the spring-arm device further comprises a punched spring-steel plate, wherein the at least one aperture and the at least one spring arm comprise portions of the spring-steel plate.

5 19. The method of Claim 13, wherein the at least one aperture comprises a plurality of apertures, each aperture operable to allow at least one package mounted to the substrate to pass through when the spring-arm device is coupled to the substrate.

10 20. The method of Claim 13, wherein the at least one heat sink is coupled to the spring-arm device prior to coupling the spring-arm device to the substrate.

21. A system for removing energy from a semiconductor device, comprising:

a spring-arm plate comprising at least one spring arm having a spring-arm clip at a distal end, wherein the spring-arm plate is coupled to a substrate having at least one package mounted thereon, and wherein the spring-arm plate has at least one
5 aperture operable to allow the at least one package to pass through; and

at least one heat sink comprising at least one heat-sink post corresponding to the at least one spring arm clip, the at least one heat sink coupled to the spring-arm clip, wherein the spring-arm clip maintains contact between the at least one heat sink
10 and the at least one package by the spring-arm pressure applied to the at least one heat sink post.